Atmospheric Propagation

- **Overall Objectives**
  - –Develop atmospheric delay calibration techniques for Radio Science
  - –Improve the estimation accuracy of atmospheric effects on communications link performance at Ka-Band
- **Goals and Products**
  - –Delay calibration requirement is 1.6 x 10^{-15} and goal is to provide calibration to 4 x 10^{-16} level (2-way) for Cassini Gravity Wave Experiment (GWE). Payoff is substantially increased possibility of gravity wave detection
  - –Provide data enabling 0.1 dB accuracy in estimated link performance due to the atmosphere effects. Payoff is better understanding of the cost to benefit ratio involved in going to Ka-Band links for deep space missions and a strategy for maximizing the downlink data rate

Comparison of Two Independent Methods to Determine Atmospheric Delay Due to Water Vapor